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NUMBERS OF SPECIES OF ANTS IN FAUNAE OF DIFFERENT LATITUDES

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The greatest diversity of species of ants is found in tropical rain-forests. It decreases with increasing latitude, with increasing elevation above sea level, and with increasing aridity. Obviously, for meaningful comparisons the territories in which the diversities of the ants are estimated should be of at least approximately equal magnitude. Data culled out of the literature, even from works of authors of unquestionable competence, may suffer from some subjectiveness in the evaluation of species and subspecies. Different local faunae have, of course, not been investigated equally thoroughly. Despite all these sources of errors, some general relationships stand out reasonably clearly.

A summary of latitudinal data for the Western hemisphere is shown in table 1. The relationship between diversity and latitude stands out perfectly clearly despite various disturbing factors. For example, the area of the isle of Trinidad is only 4800 Km², and yet 134 species of ants are known to occur there, more than on Cuba which is an island of much greater area. This is probably related to Trinidad being a continental island, with a fauna derived from the neighboring continent of South America. The fauna of Cuba is rich in endemic species (and also an endemic genus—Macromischa).

The ants of Europe are quite well known. The increase of the number of

TABLE 1. *Number of species of ants, at different latitudes in Western Hemisphere*

Territory	Latitude	Ant species	Authority
Alaska, Arctic Part	65°–70° N	3	Weber, 1950
Alaska, as a whole	58°–70° N	7	Wheeler, 1917
Iowa, USA	41°–43° N	73	Buren, 1944
Utah, USA	37°–42° N	63	Cole, 1942
Cuba	20°–23° N	101	Wheeler, 1913, 1931, 1937
Trinidad	10°–11° N	134	Wheeler, 1922
São Paulo, Brazil	20°–25° S	222	Luederwaldt, 1918
Missiones, Argentina	26°–28° S	191	Kusnezov, unpublished
Tucuman, Argentina	26°–28° S	139	Kusnezov, unpublished
Buenos Aires, Argentina	33°–39° S	103	Kusnezov, unpublished
Patagonia, as a whole	39°–52° S	59	Kusnezov, unpublished
Patagonia, humid west	40°–52° S	19	Kusnezov, 1953
Tierra del Fuego	53°–55° S	2	Kusnezov, unpublished

TABLE 2. *Number of species of ants at different latitudes in Europe*

Territory	Latitude	Ant species	Authority
Northern Norway	>69° N	10	Holgersen, 1942
Norway as a whole	58°–70° N	34	Holgersen, 1944
Germany	47°–55° N	62	
Italy	34°–47° N	104	Emery, 1916

species with decreasing latitude can be seen in table 2.

Altitudinal comparisons are possible for mountainous territories on three continents. The writer has for a number of years studied ants of the three northern provinces of Argentina, namely Tucuman, Salta, and Jujui. The following statistics of species have been recorded at different elevations.

Elevation (meters)	Ant species
400–2000	216
2000–3000	43
>3000	13

In North America, Cole (1940) has published the following data for the Great Smoky Mountains National Park (in this case the figures are for species *and* subspecies):

Elevation (feet)	Species and subspecies
1000–2000	64
2000–3000	58
3000–4000	44
4000–5000	28
5000–6000	10
>6000	2

Finally, Weber's data (1943) for Imatong Mountains in Equatorial Africa are as follows:

Elevation (feet)	Ant species
3500–6000	99
6000–7200	31
7200–10,250	9

As to aridity, a comparison of the ants of the provinces of Buenos Aires (latitude 33°–39° S, area about 307,000 Km²) and of Mendosa (latitude 32°–37°30′ S, area about 151,000 Km²) in Argentina may be instructive. According to this writer's data, the humid province of Buenos Aires has 103 recorded species of ants. The more arid Mendoza has only 49 species, and at least two of these (*Camponotus distinguendus* and *Araucomyrmex tener*) belong to the mountain fauna of the Patagonia mesophilic type, rather than to the arid zone.

The evidence which one gathers from studies on the geographic distribution of ants is, then, weighed in favor of the view that the humid tropics are the main centers of the evolution of these insects. Among ants which inhabit the humid tropic zones there exist both phylogenetically advanced forms and phylogenetically primitive and relictual ones. The ants of high latitudes, high altitudes, and of arid zones are mostly specialized, more or less ancient derivatives of the forms which are found in the humid tropics.

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